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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/035,955	12/24/2001	M. Turhan Taner	RSI-003	3527

7590 11/06/2003

E. Eugene Thigpen, Attorney  
Post Office Box 42427  
Houston, TX 77242

EXAMINER
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LE, TOAN M

ART UNIT	PAPER NUMBER
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2863

DATE MAILED: 11/06/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/035,955

Applicant(s)

TANER ET AL.

Examiner

Toan M Le

Art Unit

2863

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 04 August 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

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## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-12 are rejected under 35 U.S.C. 102(b) as being anticipated by “Kohonen’s Self Organizing Networks with Conscience”, Taner (Referred hereafter Taner).

Referring to claims 1 and 10, Taner discloses a method and a device incorporated into the method which is readable by a digital computer having instructions defining the following process and instructions to the computer to perform geophysical exploration of a subsurface region of interest, comprising: utilizing an unsupervised learning network to organize seismic data representing a subsurface region of interest (page 4, Uses of Self-Organizing Maps section: lines 1-15); correlating a portion of the organized seismic data with lithological data from a well bore located in the subsurface region of interest (page 4, Uses of Self-Organizing Maps section: lines 1-15); and applying the correlation to the seismic data to estimate lithology in the subsurface region of interest (page 4, Uses of Self-Organizing Maps section: lines 1-15).

As to claims 2-3, Taner discloses a method of geophysical exploration of a subsurface region of interest, wherein the unsupervised learning network is a self organizing feature map and a Kohonen network (page 2, Method section 2<sup>nd</sup> paragraph).

Referring to claims 4 and 11, Taner discloses a method and a device incorporated into the method which is readable by a digital computer having instructions defining the following

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process and instructions to the computer to perform geophysical exploration of a subsurface region of interest, comprising: applying a plurality of seismic data attributes for measurement location from a seismic data set from a subsurface region of interest to a Kohonen network to organize the seismic data set into a plurality of seismic Kohonen classes; selecting a subset of the organized seismic data set representative of the earth's subsurface in the vicinity of a well bore penetrating the subsurface region of interest; correlating Kohonen classes of the subset of the organized seismic data set with classes of lithological data from the well bore to generate a correlation between Kohonen classes and lithological classes; and applying the correlation to the seismic data set to estimate lithology of the measurement locations (pages 5-7, Computational Procedure section: steps 1-12).

As to claims 6 and 8, Taner discloses a method of geophysical exploration of a subsurface region of interest, wherein the lithological data comprise volume shale and acoustic impedance (page 1, Introduction section: 2<sup>nd</sup> paragraph; page 4, Uses of Self-Organizing Maps section: lines 12-13).

Referring to claims 7 and 12, Taner discloses a method and a device incorporated into the method which is readable by a digital computer having instructions defining the following process and instructions to the computer to perform geophysical exploration of a subsurface region of interest, comprising: applying a plurality of lithology values for measurement location from a well bore penetrating a subsurface region of interest to a Kohonen neural network to organize the lithology values into a plurality of lithology Kohonen classes; utilizing the lithology Kohonen classes to establish ranges of a lithology value (page 4, Uses of Self-Organizing Maps section: lines 1-15); applying a plurality of seismic data attributes for measurement location from

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a seismic data set from a subsurface region of interest to a Kohonen network to organize the seismic data set into a plurality of seismic Kohonen classes; selecting a subset of the organized seismic data set representative of the earth's subsurface in the vicinity of a well bore penetrating the subsurface region of interest; correlating Kohonen classes of the subset of the organized seismic data set with classes of lithological data from the well bore to generate a correlation between Kohonen classes and lithological classes, wherein the ranges of a lithology value are utilized in establishing boundaries of the lithology classes; and applying the correlation to the seismic data set to estimate lithology of the measurement locations from the subsurface region of interest (pages 5-7, Computational Procedure section: steps 1-12).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 5 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Taner.

Referring to claims 5 and 9, Taner discloses a method of geophysical exploration of a subsurface region of interest, comprising: applying a plurality of lithology values for measurement location from a well bore penetrating a subsurface region of interest to a Kohonen neural network to organize the lithology values into a plurality of lithology Kohonen classes; utilizing the lithology Kohonen classes to establish ranges of a lithology value (page 4, Uses of Self-Organizing Maps section: lines 1-15); applying a plurality of seismic data attributes for measurement location from a seismic data set from a subsurface region of interest to a Kohonen

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network to organize the seismic data set into a plurality of seismic Kohonen classes; selecting a subset of the organized seismic data set representative of the earth's subsurface in the vicinity of a well bore penetrating the subsurface region of interest; correlating Kohonen classes of the subset of the organized seismic data set with classes of lithological data from the well bore to generate a correlation between Kohonen classes and lithological classes, wherein the ranges of a lithology value are utilized in establishing boundaries of the lithology classes; and applying the correlation to the seismic data set to estimate lithology of the measurement locations from the subsurface region of interest (pages 5-7, Computational Procedure section: steps 1-12).

Taner does not mention the seismic data attributes comprise semblance, amplitude-versus-offset and attenuation.

However, it would have been obvious to one having ordinary skill in the art at the invention was made to have included semblance, amplitude-versus-offset and attenuation in the seismic data attributes for estimating lithology in geophysical exploration using an artificial neural network in correlating seismic data attributes with lithological data.

**Remarks:**

***Response to Arguments***

Applicant's arguments with respect to claims 1-12 have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Patent No. 6,295,504 to Ye et al.

U.S. Patent No. 5,424,959 to Reyes et al.

U.S. Patent No. 5,940,777 to Keskes

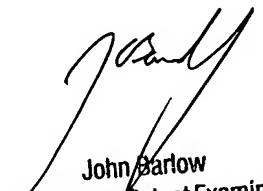
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Toan M Le whose telephone number is (703) 305-4016. The examiner can normally be reached on Monday through Friday from 9:00 A.M. to 5:30 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Barlow can be reached on (703) 308-3126. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306 for regular communications and (703) 872-9306 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4900.

Toan Le

October 15, 2003

  
John Barlow  
Supervisory Patent Examiner  
Technology Center 2800